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ABSTRACT

Over the past 3 years, the Mathematics Department of Grossmont College, in California, has examined the issues of course standards, instructor grading variability, and course placement. In 1990, a study was conducted to determine if the Elementary Algebra instructors with lower pass rates had higher standards, and if their students had a higher probability of passing Intermediate Algebra. The pass rates of 15 Elementary Algebra instructors who had taught at least 200 students each in a total of 142 sections between 1986 and 1989 were analyzed. Of the 5,788 students enrolled in the elementary course during this period, a total of 2,451 had passed it. These students were tracked individually through summer 1990 to ascertain first-try pass rates in the Intermediate Algebra course. Study findings included the following: (1) instructors with lower pass rates did appear to have higher course standards; (2) the lower the instructor's pass rate in Elementary Algebra, the higher their students' probability of passing Intermediate Algebra, though the probability of passing both courses was about the same for entering students of all instructors; and (4) not all students had enrolled in Intermediate Algebra as their next math sequence. Implications for current practice and data tables are provided. (MAB)

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Winston Dean

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April 1991

Grossmont College
El Cajon, CA

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Student Success and Instructor Pass Rates

Winston Dean
Grossmont College

Over the past three years, the Grossmont College Mathematics Department has examined the issues of course standards, instructor grading variability, and course placement in some interesting and courageous ways. They have acted to lessen the differences in course pass rates among instructors in two ways: 1) by using exit exams for instructor consistency first, and student proficiency second, and 2) by keeping principles before personalities.

This paper is the result of the latest "Math Department + Institutional Research Conspiracy Workshop" held during Professional Development Week, August 1990.

The issues were: "In the past some Elementary Algebra instructors have had lower pass rates than their colleagues. Do these instructors have higher course standards? Do their students have a higher probability of passing Intermediate Algebra?"

Fifteen Elementary Algebra instructors with at least 200 students each during the four-year period 1986-1989 were analyzed for pass rates in 142 sections. 2415 of the 5788 students passed and were tracked individually through Summer 1990 for possible first-try outcomes in Intermediate Algebra.

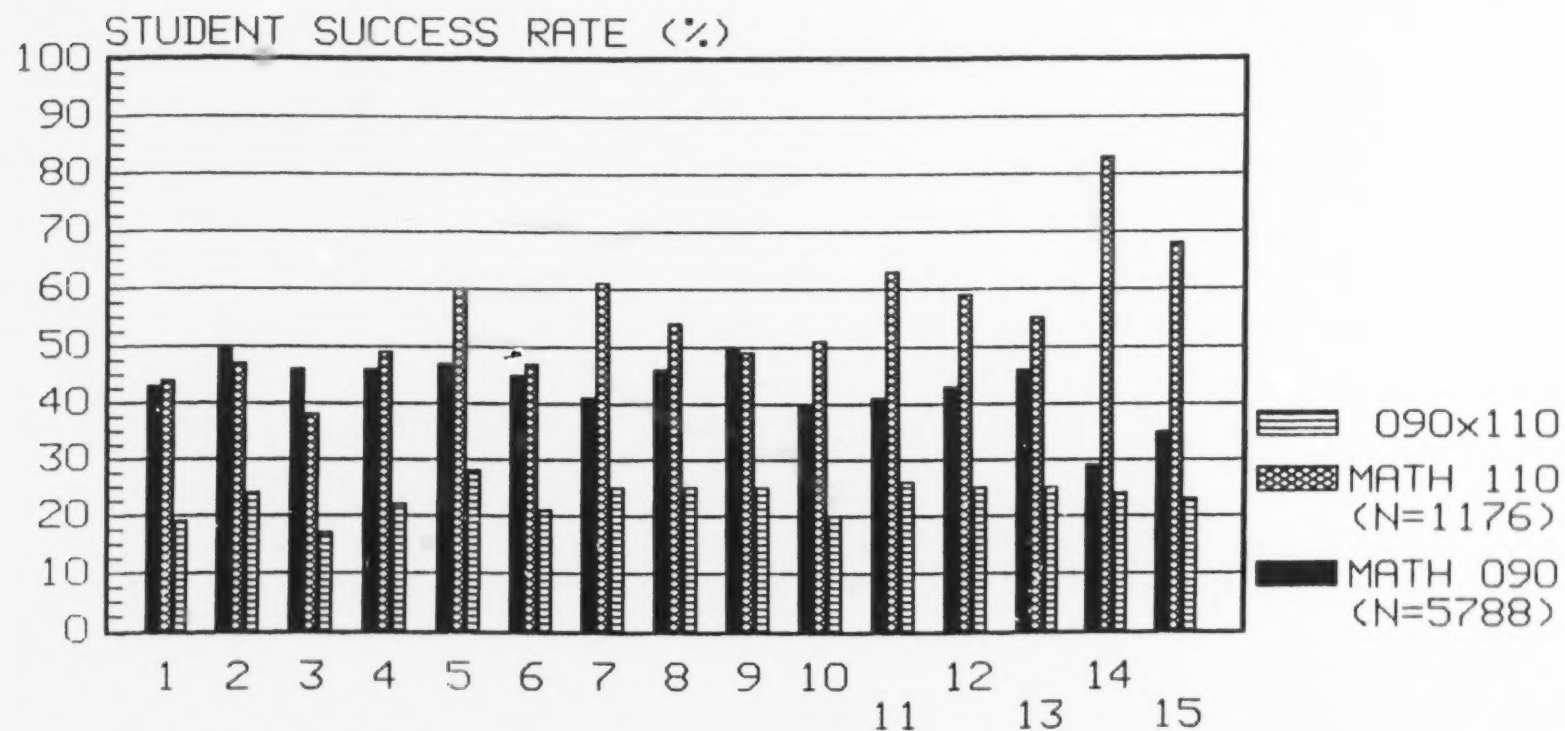
Findings

- Instructors with lower pass rates did, indeed, appear to have higher course standards.
- The lower the instructor's pass rate in Elementary Algebra, the higher their students' probability of passing Intermediate Algebra.
- However, the probability of passing both courses was about the same for entering students of all instructors.
- Not all students took Intermediate Algebra next in their Math sequence.

Implications for Current Practice

- Consider using department consensus when discussing course content and level of difficulty.
- Consider all sequel courses for which the given course is prerequisite when agreeing on standards.
- Instructor pass rates should be about the same (chi-square) before evaluating the predictive validity of placement cutoff scores.

GROSSMONT COLLEGE
 MATHEMATICS DEPARTMENT
 STUDENT SUCCESS RATE BY INSTRUCTOR
 MATH 090 --> MATH 110



December 3, 1990

To: Peg Hovde, Math Department Chair

From: Winston Dean, Institutional Research

Subj: Track Pass MATH090 --> MATH110 by instructor (REVISED)

At our workshop during Professional Development Week in August, you asked me to investigate the success rates of students in MATH110 who had studied with specific instructors in MATH090. "If some instructors have lower pass rates (higher standards) in MATH090, then perhaps their students have higher than average success rates in MATH110."

Here are the results:

instructor code	passed Elementary Algebra	passed Intermediate Algebra	probability of passing both
1	110/257 43%	22/50 44%	19%
2	128/257 50%	36/76 47%	24%
3	165/355 46%	27/72 38%	17%
4	159/349 46%	33/67 49%	22%
5	131/279 47%	38/63 60%	28%
6	120/269 45%	29/62 47%	21%
7	196/482 41%	54/88 61%	25%
8	259/563 46%	65/121 54%	25%
9	103/207 50%	24/49 49%	25%
10	271/673 40%	68/134 51%	20%
11	129/314 41%	38/60 63%	26%
12	119/275 43%	31/53 59%	25%
13	128/280 46%	42/77 55%	25%
14	152/522 29%	70/84 83%	24%
15	245/706 35%	81/120 68%	23%
totals	2415/5788 42%	658/1176 56%	23%

As you discuss implications for current practice, I suggest you keep two things in mind: 1) common course standards - as you've done with exit exams, and 2) not all students follow the same sequence. Keep up the good work. I look forward to meeting with you again in January.

P.S. "next course": MATH 103 --> 153 (6%)
MATH 110 --> 1176 (49%)
MATH 120 --> 418 (17%)
None of these 668 (28%)

intervals: MATH 090 Sp86 - Fa89
sequel Su86 - Su90

Crosstabulation: SECT
By SUCCESS

SUCCESS→	Count Row Pct	DFW 0	ABC 1	Row Total
SECT				
1	28 56.0	22 44.0	50 4.3	
2	40 52.6	36 47.4	76 6.5	
3	45 62.5	27 37.5	72 6.1	
4	34 50.7	33 49.3	67 5.7	
5	25 39.7	38 60.3	63 5.4	
6	33 53.2	29 46.8	62 5.3	
7	34 38.6	54 61.4	88 7.5	
8	56 46.3	65 53.7	121 10.3	
9	25 51.0	24 49.0	49 4.2	
10	66 49.3	68 50.7	134 11.4	
11	22 36.7	38 63.3	60 5.1	
12	22 41.5	31 58.5	53 4.5	
13	35 45.5	42 54.5	77 6.5	
14	14 16.7	70 83.3	84 7.1	
15	39 32.5	81 67.5	120 10.2	
Column Total	518 44.0	658 56.0	1176 100.0	

Chi-Square

D.F.

Significance

Min E.F.

Cells with E.F. < 5

56.24633

14

.0000

8

21.583

None